DOCUMENT RESUME

ED 201 391 PS 012 132

AUTHOR Van Kleeck, Ann; Street, Richard
TITLE Does Reticence Mean Just Talking Less? Qualitative and Quantitative Differences in the Language of Talkative and Reticent Preschoolers.
PUB DATE Apr 81
NOTE 40p.; Paper presented at the Annual Meeting of the American Educational Research Association (Los Angeles, CA, April 11-17, 1981).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Adults; *Child Language; Discourse Analysis; *Females; Individual Differences; *Interaction; Observation; *Preschool Children; Preschool Education; *Speech Communication
IDENTIFIERS *Reticence; Speech Acts

ABSTRACT

Four normal 3 1/2-year-old preschool girls who varied in degree of talkativeness were observed in a semi-naturalistic setting in order to determine the existence and nature of linguistic differences in their interactions with adults. Adult conversational partners who participated in the study were 28 college-educated females who spoke American English as their native language. Each child interacted individually with six to eight previously unfamiliar adults while at play for one half hour in a small room equipped with child-size furniture and age-appropriate toys. Each session was videorecorded. The data consisted of both adult and child talk occurring during the free play session. Each videorecorded session was transcribed until 100 adult utterances were obtained, yielding a total of 2,800 adult and accompanying child utterances. Both structural complexity and language use aspects of children's and adults' language were analyzed. Findings indicate numerous differences, both quantitative and qualitative, between the language of the two talkative and two reticent children observed. Quantitatively, the talkative children produced more of all the coded pragmatic functions and, in the discourse analysis, more adequate responses to adult- initiated comments. Qualitatively, differences were noted in structural complexity, in pragmatic functions, and in the discourse functions of the children's self-initiated speech. (Author/RH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED201391

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Does Reticence Mean Just Talking Less? Qualitative and Quantitative Differences in the Language of Talkative and Reticent Preschoolers

Anne Van Kleeck
The University of Texas at Austin

and

Richard Street
The University of Arkansas at Fayetteville

Paper presented at the Annual Convention of The American Educational Research Association, Los Angeles, April, 1981.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Anne Van Kleeck

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

PS012132

Does Reticence Mean Just Talking Less? Qualitative and Quantitative Differences in the Language of Talkative and Reticent Preschoolers

Anne Van Kleeck
The University of Texas at Austin

and

Richard Street
The University of Arkansas at Fayetteville

While the concept of reticence has been studied for decades by researchers in a variety of disciplines, it has been virtually ignored by scholars in the area of language acquisition. And yet, there is much to be gained by the marriage of these two lines of endeavor. Applying the theoretical orientation and consequent methodology developed by language acquisition researchers provides a new orientation for offering insights regarding the nature of reticence. Conversely, understanding the nature of reticence has implications for language acquisition theory.

The potential benefit of applying language acquisition theory and methods to the study of reticence becomes evident when one considers the nature of previous research attempting to understand this disposition. The global concept of reticence has been studied by researchers in a variety of disciplines, who have accordingly generated a variety of labels to discuss this construct (e.g., audience anxiety or sensitivity, shyness, stage fright, communication apprehension). Regardless of particular labels, the work to date has in common that it has dealt primarily with adults and has focused on variables "surrounding" reticence such as what occurs before (causes), alongside (correlates), and after (consequences). There has been little attempt, however, to study either the ontogenesis or the actual communicative behaviors of reticence. While it is clear that talkative and reticent children differ in the quantity of language they contribute to a conversation, the important question is to determine if qualitative differences

exist as well. By using methodology developed by language acquisition researchers, the actual linguistic behaviors that distinguish talkative from reticent children can be determined.

Delineating the linguistic aspects of reticence would also help clarify theoretic issues regarding the causes and social consequences of reticence. Literature regarding the causes of social-communicative anxiety offers potential insights into the causes of reticence, since the definitions of these two constructs are basically interchangeable (Daly, Note 1, defines social-communicative anxiety as "the dispositional differences among people in their willingness to engage in social and communicative activities"). To date, four major etiologies of social-communicative anxiety have been suggested. They are (a) genetic disposition, (b) reinforcement, (c) skill acquisition, and (d) modeling (see Van Kleeck & Daly, 1981 , for further discussion). Observing actual communicative behaviors provides a test of the validity of these various potential etiologies. For example, if a reticent child's discourse skills resembled those characteristic of a younger but more talkative child, this finding would constitute evidence for a delay in skill acquisition. On the other hand, if reticent children exhibit the same proportional distribution of discourse devices as their more talkative peers, a skill delay explanation would not be supported for that particular aspect of language.

The plethora of negative consequences associated with reticence in academic, economic, and social realms is well documented. To a large extent, these negative social consequences are the result of negative social perceptions formed by others regarding the reticent individual. Less talkative persons are judged more negatively than their more verbal counterparts on a number of dimensions including attractiveness, credibility, influence, and power (Daly, McCroskey & Richmond, 1976, 1977; Daly, Richmond, & Leth, 1979; Hayes & Meltzer, 1972; McCroskey & Daly

1976; McCroskey, Daly, Richmond, & Cox, 1975). Determining what quiet children do or do not do in a particular conversation, and how the adult interactant responds to them may help determine what conversational behaviors trigger these documented negative social perceptions. This type of analysis could also lead to the establishment of concrete goals for training such children and thereby alleviating the negative social consequences.

Understanding reticence from a linguistic perspective has important implications for some issues regarding language acquisition in general. Two specific issues are paramount here. First, in our recent efforts to understand individual variation in the language acquisition process, the existence and nature of the communicative behaviors which differentiate talkative from quiet children have not been considered. Indeed, most spontaneous language sample data upon which our knowledge of normal development is based have systematically eliminated the quiet child or selectively chosen the more talkative child (e.g., Brown, 1973). This practice, while expedient for the researcher, has perhaps narrowed our understanding of the true range of individual differences in language acquisition. Second, the quiet-talkative distinction provides a fertile ground for exploring the effects children have on the nature of the verbal input they receive from adults. A controversy in the literature exists between those who believe the child's language level is responsible for those modifications and those who believe the child's interactive skills to be causal (these positions will be more fully addressed later). The naturally occuring distinction of talkative versus quiet children in their propensity to engage in social interaction while sharing age appropriate knowledge of language structure allows addressing this issue.

The purpose of the present study was to conduct an investigation of the language behaviors of reticent children and to ascertain how these compare with

the language behaviors of more talkative children. This issue was approached from two interrelated perspectives, generating the following broad questions:

1. Are there qualitative, as well as quantative, differences in the linguistic structure and/or language use behaviors of talkative versus reticent children?
2. Do adults make differential adjustments in their linguistic behaviors when talking to talkative versus reticent children?

The multidimensional nature of language necessitated using various perspectives for this analysis. Since talkative and reticent children may well vary on some dimensions but not on others, it was necessary to use a broad-based analytic scheme. Similarly, these children may influence some aspects of the language of their conversational partners but not others. Here we considered two broad components of language widely recognized in the language acquisition literature, these being (1) linguistic form (i.e., structural aspects of language), and (2) language use features (i.e., both pragmatic intent and discourse functions). Although there is currently no data available on these aspects of language for reticent versus talkative children, it is possible to discuss some outcomes.

Concerning linguistic form, reticent children have the basic linguistic tools commensurate with their chronological age. That is, their disinclination to engage in conversation is not due to pathological or delayed development of the formal aspects of language. From this point of view, one can predict that the language of talkative and reticent children will be similar in its syntactic complexity. On the other hand, performance does not necessarily reflect competence. Consequently, a reticent child may be less inclined in certain social situations to use the full range of syntactic structures he or she can comprehend or produce.

In this study, language use was conceptualized as containing two distinct levels of function--pragmatic and discourse. The pragmatic function (also called the illocutionary force) considers the purpose of the utterance, i.e., the specific reason or reasons the speaker is motivated to speak. Is it to inform, to manipulate, etc.? The discourse function considers how the utterance relates to the previous utterance in the conversation. Does the utterance answer a question, acknowledge a comment, etc.? While these two domains do interact, they represent different levels of analysis and as such require independent coding if the nature of each is to be adequately determined. Furthermore, each of these perspectives asks a different question about the language use of talkative versus quiet children.

Regarding the pragmatic functions, both groups of children may exhibit the same range of functions, although the quiet children may do so with less frequency. It is also possible, however, that because talkative children talk more, they have learned more about the range of uses of language. Also, since the talkative child is often more socialable, she or he may have a greater need for a broader range of language functions, providing a greater motivation for such learning. Regarding the discourse parameters of language, it is clear that these two groups of children differ in the quantity of language they contribute to a conversation. The major question, then, concerns whether talkative and reticent children use the various discourse devices with similar relative frequency or with different proportional distributions. The more frequent conversational practice of talkative children might predict that they would incur more advanced conversational skills than their more reticent peers. This type of "using language to learn more about language" strategy has been suggested in the literature as facilitory to language development (Snyder-McLean & McLean, 1977). On the other hand, the mere fact that overt learning or practicing strategies are not observable in the more quiet child does not constitute evidence that learning is not taking place. The more quiet child may simply have more covert

means of interacting with and processing her or his environment. As such, discourse learning may be equally advanced, although not manifested with equal frequency, in the two groups of children.

Our second research question concerned the linguistic behaviors of adults interacting with talkative versus reticent children. There is ample evidence that speakers adjust aspects of their language in response to varying characteristics of their conversational partner. Adults modify many parameters of their talk according to the age of their young interlocuter. As children develop, adults correspondingly make rather sensitive adjustments in numerous aspects of their child-directed talk. For example, semantically, concreteness and explicitness diminishes, as does reference to observable ongoing events. Pragmatically, redundancy and the number of questions and directives decreases (see Slobin, 1975, for a review).

Although the sensitivity of child-directed talk to children of different ages and/or cognitive levels has been well documented, attention has not been directed to determining the nature and causes of variation in child-directed talk to children of the same age and cognitive level. In this study, we attempted to determine if at one particular age, varying degrees of child talkativeness would result in measurable adjustments in adults' linguistic behaviors. Two alternate models regarding the causes of child-directed talk modifications have evolved from the studies of linguistic adjustments in language addressed to children of different ages. Each offers a different prediction for the possible influence of talkativeness (or conversely, reticence) on adult linguistic behaviors.

One model, referred to as the conversational model (Newport, 1976; Newport, Gleitman, & Gleitman, 1977; Shatz & Gelman, 1977; Snow, 1977) would predict that adjustments would indeed occur as a function of the talkativeness of the child being addressed. According to the model, the main goal of the adult in talking to young children is to maintain social contact. As such, the adults adjust their communicative behaviors to children in order to elicit responses from them. Since reticent

children are less responsive in conversations, this model predicts that adults would use more response-eliciting communicative behaviors with them, such as asking questions. With more talkative children, such adjustments would not need to be as frequently employed.

The alternate model, referred to as a comprehension model, suggests that a child's language comprehension level determines child-directed talk modifications (Bohannon & Marquis, 1977; Cross, 1977; Ervin-Trip, 1971; Van Kleeck & Carpenter, 1980; Weddell-Monnig & Westerman, Note 1). This model predicts similarities in adult interaction with talkative and reticent children, since both types of children are equally proficient in their language comprehension skills. Since language is multidimensional, it is further possible that both of these models may be partially correct (see Brown, 1977). That is, each model may be true for certain aspects of the linguistic code, but not for other aspects. A broad-based analytic scheme could again potentially illuminate this particular possibility.

In the present study, three year-olds who varied in degree of talkativeness were observed in a semi-naturalistic setting in order to determine the existence and nature of linguistic differences in their communication interactions with adults. Furthermore, the effects on the adults of interacting with children who varied along the dimension of talkativeness were of interest. Rather than attempting to cover all aspects of language in depth in this initial attempt, the purpose was to sample each area, thereby pointing to those areas that might be most productively explored in future research.

METHOD

Subjects

Children. This study looked at the language produced by four normal three and one half year-old girls (two talkative and two reticent) and their adult conversational partners. Two of the children had participated in a previous study (Van Kleeck & Carpenter, 1980) where it was informally noted that they differed

in the amount of talk they each contributed to spontaneous conversations with adults. Two other children were selected by teacher report, since research has shown that teachers' rankings of students' verbal interaction frequencies are most highly correlated to the children's actual interaction rate in preschool settings (Greenwood, Walker, Todd, & Hops, 1979). The teacher was asked to generate a list of talkative and quiet children. The second two subjects were randomly drawn from this list. All four children attended preschool. The native language spoken in each child's home was American English.

The results of several standardized tests indicated that all four children were developing language structure normally (within one standard deviation) for their chronological age. Tested were receptive vocabulary (Peabody Picture Vocabulary Test, Dunn, 1959), receptive syntax (Test for Auditory Comprehension of Language, Carrow, 1973), and spontaneous expressive language (developmental sentence scoring procedure from Developmental Sentence Analysis, Lee, 1974). Following data collection, a post-hoc definition of talkativeness was generated on the basis of the average number of child utterances per 100 adult utterances. On this basis of this computation, the average number of utterances per 100 adult utterances was 38 for the reticent children and 78 for the talkative children.

Adults. The adults were twenty-eight college-educated females from the Austin and Seattle areas who spoke American English as their native language.

Procedures

Each child interacted individually with six to eight previously unfamiliar adults. In this way, differences would occur only if the children were longitudinally consistently different in their use of language in a similar social context. This assured that child differences were not solely a function of interacting with a particular adult conversational partner. That is, the design ruled out the possibility that the adult member of the conversational dyad was the primary cause of the child's response pattern. Furthermore, the design

allowed determining the influence of the children on the adults.

Each child played with the adults for one half hour in a small room at a university speech and hearing clinic. Child-size furniture and age appropriate toys were available. The investigator was not present during the play session. Each session was videorecorded using a camera mounted in the room that was operated from behind one-way observational mirrors or from a control room. Prior to each session, the adult was simply told to interact naturally with the child for the duration of the one-half hour session.

Data

The data consisted of both adult and child talk occuring during the free play session. To obtain samples for analysis, each videorecorded session was transcribed until 100 adult utterances were obtained. In total, there were 2,800 adult utterances and the accompanying child utterances. For all the samples, both adult and child language and the nonlinguistic situational context were transcribed according to conventions set forth by Bloom, Hood, and Lightbown (Bloom & Lahey, 1978, Appendix A.1).

Analytic Scheme

Both structural complexity and language use aspects of the children's and adults' language were analyzed. The structural measures were intended to provide estimates of various aspects of language complexity and included (1) mean length of utterance (MLU) computed by determining the average number of morphemes per 100 adult and 100 child utterances (in cases where 100 child utterances were not obtained in the one half hour sample, the maximum number of child utterances available were used), (2) lexical diversity, computed by determining a lexical type-token ratio based on the first 100 adult or child words; (3) a noun, verb,

adjective, adverb ratio, computed by adding the number of nouns plus verbs and dividing by the number of adjectives plus adverbs in the first 100 words (a smaller ratio indicates greater grammatical complexity); and (4) a word length index, computed by determining syllables per word based on the first 100 words (see Lynch, 1970, for discussion of measures 3 and 4). For the children alone, the proportion of complex sentences was also determined.

The pragmatic functions included two broad categories, assertives and requestives, and subcategories of each. Assertives were subdivided into (1) evaluative comments, (2) complies, (3) noncomplies, and (4) other comments. Requestives included (1) verbal obliges (requiring a verbal response) and (2) requests for physical action. Requests for physical action were further coded into categories indicating direct versus indirect linguistic form.

The children's participation in ongoing discourse was considered by looking at their responses to comments and obliges posed in adult-initiated utterances. The nature of their own self-initiated utterances was also categorized into comments and obliges. This analysis was approached using a matrix categorization scheme which allowed the simultaneous coding of the behaviors of both partners in the conversational interaction. The categories, presented in Table 1, were adapted from Blank, Gessner, and Esposito (1979). At the most general level, this scheme determines who initiated the topic. At the next level, the utterance of the initiator was classified broadly into either an oblige or comment. Obliges require responses, either verbal or nonverbal. They are frequently in question form. The comment category included all other utterances. The third and final level of analysis considered the responses of the non-initiator, if any. The four categories included here were (1) adequate response, (2) inadequate response, (3) no response, and (4) other. In the present study, the adequate response category was further divided into those which merely met the conversational obligation, and those which met but also elaborated or expanded in giving information.

Reliability

Four randomly chosen samples were both transcribed and scored by three independent judges to obtain reliability. For transcription, percent agreement for segmentation of the corpus into utterances, morpheme agreement, description of the nonlinguistic context, and for categorization of utterances as a question ranged from 89 to 99 percent. For scoring procedures, interjudge agreement ranged from 85 to 99 percent for the structural complexity measures and from 72 to 92 for the pragmatic and discourse function measures.

Statistical Analysis

For all measures of the four children's language, t-tests were conducted using each dyadic interaction as the source of variation. Thus for the two talkative children combined, there were a total of fourteen adult-talkative child interactions, since one child interacted with six different adults and the other with eight. Likewise, there were fourteen adult-reticent child dyadic interactions. With this total of 28 interactions in both groups combined confidence levels were determined at 26 degrees of freedom.

In effect, the two talkative and the two reticent children created (albeit quasi-experimentally) two different treatment conditions for the 28 different adult subjects (14 per condition). Here again, t-tests were conducted, using 26 degrees of freedom.

Where appropriate, the quantitative versus qualitative research issues were addressed by entering different data for statistical analysis. The structural complexity measures all address qualitative differences, since they are computed by equalizing the quantity of utterances or words that go into the various calculations. Thus, a higher MLU for the talkative children, for example, would indicate a comparatively greater proportional frequency of longer utterances (given that the standard deviations indicated similar distributions). This would mean that quiet children not only talk less (the quantitative issue),

but also that the utterances they do use when they talk tend to be less structurally complex (a qualitative difference).

For the pragmatic functions and discourse functions of the children's language, raw frequencies were entered into the claculations to address the issue of mere quantity differences. In order to adjust for quantitative differences, proportional data (arcsin transformations) were used to address the qualitative issue. For example, for the two major pragmatic function categories of assertives and requestives, the proportion of each child's total number of utterances that fell into each category was used. For the subcategories of assertives, for example, the data consisted of the proportion of the total number of assertives that fell into each category.

For the analysis of pragmatic functions occuring in the adults' language, the quantitative versus qualitative issue was obscured due to the sampling procedure which held the total number of adult utterances at a constant of 100.

On the tests addressing the quantitative issue, one-tailed t -tests were conducted, since it could be hypothesized that the talkative children would have a greater raw frequency of occurrence of the various categories. Since a directional hypothesis could not be assumed regarding the proportional distributions of the various pragmatic and discourse functions in the talk of the quiet versus talkative children, two-tailed tests were conducted.

Since the analytic scheme employed contained several categories and subcategories within each language domain investigated, it was necessary to take precautions against the corresponding increased probability of committing a Type I error. This was done by dividing the traditionally accepted probability level of .05 by the number of tests being conducted in each particular category. The allowable probability level thus varied depending upon the number of tests being conducted within a particular domain--be it structural complexity, pragmatic function, or discourse function. Thus for each of the five structural complexity measures

of the children's language, the probability level was set at .01. For the adults, where four measures of this type were employed, a probability of .0125 was acceptable. Furthermore, these above tests were two-tailed, since an expectation of greater structural complexity by either group of children or addressed to either group of children could not be confidently hypothesized.

On the pragmatic function measures, a heirarchy was established for conducting the statistical tests. First, the utterances were dichotomized into assertives and requestives. Dividing the probability level here, a p value of .025 was required. For the five subcategories of assertives, a p level of .01 was required. For the two subcategories of requestives, .025 was required. Also, for the direct versus indirect form of the requestives, .025 was required. For the discourse measures, five response types to adult-initiated comments and obliges were coded. As such, a p level of .05 was required here. As mentioned earlier, the tests conducted on raw frequencies were one-tailed, while those using proportional data were two-tailed.

RESULTS

Child Behaviors

As shown in Table 2, on the structural complexity measures, the talkative children had a significantly higher MLU, significantly more lexical diversity, and a greater proportion of complex sentences than the reticent children. Differences were not observed on the noun-verb-adjective-adverb ratio or on the word length index.

On the pragmatic function measures, both quantitative and qualitative differences were observed. Table 3 shows the raw frequency of occurrence of the major categories and subcategories of pragmatic function. On all the measures for which there was sufficient data for statistical comparison, the talkative children demonstrated a significantly higher occurrence. To address the quali-

tative issue, proportions were used to adjust for differences in the raw frequencies of occurrence between the two groups of children. Table 4 gives the proportion of the total talk produced by the two types of children that were categorized as assertives, requestives, and subcategories of each. On all measures, excluding requests for verbal response, the proportional frequencies were significantly different for the two groups. Compared to the reticent children, the talkative children had a lower proportion of assertives in their talk, with a lower proportion of comments but a higher proportion of complies within that category. Correspondingly, the talkative children had a greater proportional frequency of requestives, with the subcategory of requests for physical action accounting for this difference. Both groups of children encoded their requestives in a direct form the vast majority of the time. However, the proportional frequency of indirect requestives was significantly higher for the talkative children.

Regarding the discourse analysis, as shown in Table 5, quantitative differences between the two types of children occurred in their adequate responses to comments. As might be expected, the proportion of adult-initiated comments receiving adequate responses was significantly higher for the talkative children. The children did not differ significantly, however, in the proportion of adult-initiated obliges to which they gave adequate responses. The reticent children had higher no response rates to both comments and obliges.

The qualitative analysis of discourse functions, displayed in Table 6, revealed no significant differences between the two groups of children.

A final analysis of the children's language at the discourse level considered the nature of the child-initiated utterances. In Table 7 it can be seen that the talkative children had a lower proportion of comments and a correspondingly higher proportion of obliges in their self-initiated speech.

Adult Behaviors

As indicated in Table 8, nc significant differences in adult language to talkative versus reticent children were obtained on the measures of language complexity. Regarding the pragmatic functions, adult speech to talkative children was systematically different from speech to reticent children in several ways. Table 9 indicates adults' use of assertives and requestives as determined by raw score per 100 utterances (thus reflecting proportional data as well) varied significantly between groups, with more assertives and fewer requestives being addressed to the talkative children. Analyzing the data within the category of assertives, the adults used more comments, more complies, and more non-complies. Within the category of requestives, verbal obliges were addressed to the talkative children with less frequency. The frequencies of requests for physical action were not statistically different. The adults used direct requests significantly more often with the reticent children. The frequency of indirect requests did not differ significantly.

DISCUSSION

Child Behaviors

The analysis performed in the present study revealed numerous differences, both quantitative and qualitative, between the language of the two talkative and two reticent children observed. Quantitatively, the talkative children produced more of all of the coded pragmatic functions and, in the discourse analysis, more adequate responses to adult-initiated comments. Qualitatively, differences were noted in structural complexity, in pragmatic functions, and in the discourse functions of the children's self-initiated speech.

Structural complexity. Concerning structural complexity, pre-testing established that the reticent children had age appropriate knowledge of language structure.

This was established both receptively and expressively. That is, the reticent children's disinclination to engage in conversation was not due to pathological or delayed development of the formal aspects of their language. The significant differences on 3 of the 5 measures tapping structural complexity indicates a qualitative difference between the groups. It was not the case that the reticent children simply talked less. They were also less inclined to use the full range of complexity they demonstrate on standardized tests when engaged in spontaneous conversation. Regarding the implications of this finding, one might question the potential impact of the consistent use of less complex language on the language development of the reticent child. Snyder-McLean and McLean (1977) discuss how talkativeness may be one strategy children use for furthering their knowledge of language. If this is the case, reticence may actually be deleterious to the language acquisition process. Reticent children might simply get less practice and as such may eventually fall behind in their knowledge of language form.

Research on both normal and delayed language development frequently uses mean length of utterance (MLU) as an indicator of language development. Often groups of subjects are matched on this criterion alone. The findings in the current study that MLU did not equally reflect the syntactic knowledge of talkative and reticent children raises some perplexing issues. Have we been systematically biasing research findings by the assumption that MLU is a good indicator of syntactic development? Is it possible that quiet children have been systematically eliminated from much research in which children were matched on MLU, simply because their MLU's have made it appear that their syntactic development was inadequate for their chronological age? If so, those included in much research may represent a special subset of children developing language normally--that is, those who are more loquacious. Biasing of the samples included in studies would have the effect of narrowing our understanding of the true range of individual differences in the normal development of language.

In other research where children have not been originally matched for MLU, it is possible that not distinguishing between talkative and reticent children may have served to obscure the results obtained. That is, there may be an interaction effect between a child's talkativeness and the type of response she or he has to different situational variables. In data collapsed over these two types of children, such differences would be obscured. This concern was raised in a study of stimulus conditions used in language sampling that was conducted by Longhurst and File (1977). Further research using larger numbers of talkative and reticent children is needed to corroborate the present results regarding language complexity in general and MLU specifically. Determining a consistent influence of the talkative/quiet dimension on MLU's obtained from spontaneous language samples would clearly be important to interpreting previous research and designing future studies.

Pragmatic functions. It is not surprising that the talkative children had a higher raw frequency of the various pragmatic functions measured. Indeed, quantity differences are inherent in the definitions of the two types of children. However, the data support the position that there are qualitative differences in pragmatic function as well, since the reticent children did not exhibit the same proportional use of the various functions measured.

While both groups of children had more assertives than requestives in their speech, the reticent children had a significantly higher proportion of comments. Correspondingly, they had a significantly lower proportion of requestives, accounted for by less requests for physical action. This pattern of findings suggests that the reticent children were less inclined than their more talkative peers to use language to manipulate others. This tendency is further corroborated in that noncomplies occurred only in the speech of the talkative children (see Table 3), even though the adults addressed a similar number of requests for physical action and significantly more requests for verbal responses to the reticent children

(see Table 9). The reticent children also had fewer complies in their speech. This overall pattern may indicate a power-sharing or symmetry in the conversations of the adult-talkative child dyads that was not present in the adult-reticent child dyads.

The reticent children appeared in general to be more restricted in their use of language. No instances of positive or negative evaluation or noncomplies were found in their language samples. Complies were present, but there were proportionally significantly fewer of them. In the course of language development, children learn to verbally encode a greater range of language functions (e.g., Halliday, 1973, 1975). As such, the more restricted range of functions observed in the reticent children could be regarded as evidence for a skill delay. The fact that the talkative children encoded a significantly greater proportion of their requests in indirect forms further bolsters the argument for a delay in skill acquisition, since the indirect forms are later emerging.

Discourse functions. Regarding the discourse parameter of the children's language, the talkative children again demonstrated higher raw frequencies on numerous measures. Within the category of comments, the talkative children had significantly more adequate responses. Both groups of children, however, had a substantially higher rate of response to obliges as opposed to comments. There were no differences in the raw frequencies of adequate responses to obliges. The responses to obliges are in line with other normal developmental data. Responding to questions "is among the first clearly discourse-bound obligations to which children are sensitive"(Ervin-Tripp & Miller, 1977, p. 14). Since this is a very early emerging discourse skill, it is not surprising that by three years of age, both talkative and reticent children show equivalent proficiency, reflected in their similar response rates.

While obliges explicitly require a response from a conversational partner,

Keenan (1974) points out that even comments seem to lead to an anticipation, and thus an implicit obligation, for response. "A speaker uttering a comment expects the hearer to ACKNOWLEDGE that comment. That is, once a comment has been produced by a speaker, the co-present interlocuter is normally obligated to respond verbally to that comment" (Keenan, 1974, p. 166). An awareness of this less explicit conversational obligation develops later than an awareness that obliges require responses, a finding supported by the children in the present study.

Although some quantity differences emerged, the proportion of each type of child's total number of adequate responses that were to comments as opposed to obliges was not significantly different. This finding indicates that the two groups of children showed similar response patterns to adult-initiated utterances.

The pattern which emerged for both types of children regarding expanding upon required information in response to both comments and obliges warrants further discussion. The children's responses to adult obliges and comments were analyzed into those which met the conversational obligation and those which met and also offered additional unsolicited information. For example, if a child responded "yes" to a yes/no question posed by an adult, she was merely meeting the response obligation. On the other hand, when asked "How old are you?," the child might respond, "Three and my sister is nine." Here the child has yet the response obligation and added further information. All of the children very rarely offered additional information in response to obliges. This finding supports other empirical evedence that questions can inhibit spontaneous conversation in children (see Hubbell, 1977, for discussion).

On child-initiated utterances, a qualitative distinction did emerge. The reticent children had a greater proportion of comments and a correspondingly smaller proportion of obliges. This finding regarding child-initiated utterances reflects the findings regarding the general pragmatic functions of the children's

talk, where more comments than obliges were observed. Again, since the talkative children were requiring more adult responses in their self-initiated utterances, they appeared to be more active and controlling participants in the conversations. This resulted in a more symmetrical discourse pattern, since the onus of maintaining the conversation was lightened for the adult member of the dyad. In this sense, the adult-talkative child dyads resembled more the symmetrical interactions characteristic of conversations between equal status (for adult) or equal age (for children) participants (e.g., Giles, 1973, 1977; Lougee, Grueneich, & Hartup, 1977: Van Kleeck & Cooper, Note 3). It appears, then, that symmetry of conversational exchange may be one further parameter which distinguishes talkative from less talkative children.

Adult Behaviors

The original predictions that discourse but not the structural aspects of adult's language would be influenced by degree of child talkativeness were supported by the findings. The comprehension model appears to be a plausible explanation for the modifications adults make in the structural complexity of their speech when addressing young children. As established by pre-testing, these children were all at age level proficiency in their language comprehension skills, and the adults did not modify this aspect of their communicative behavior. On the other hand, significant differences did occur on numerous measures of the pragmatic aspects of adult talk. As such, the comprehension model cannot account for these results. For this dimension of adult talk, it appears the conversational model has been supported, since the adults' behavior with the reticent children reflects an attempt to engage the child in the interaction. That is, questions more explicitly oblige a child to respond and thus participate in the conversation. The more talkative children apparently kept up their end of the conversation without frequent questions being posed.

The possible negative impact of the noted adult talk modifications on the development of reticent children warrants discussion. Bell (1974, 1975) discusses how parents naturally react to either extremes of quantitative excess or deficiency in children's behavior. Child behaviors that are excessive trigger what he terms upper limit controls which are intended to reduce the excessive child behavior. Conversely, insufficient child behaviors trigger lower-limit controls which serve to stimulate or increase the insufficient child behaviors. Question asking (verbal obliges) appear to be a naturally occuring lower-limit control employed to compensate for the lack of spontaneous responsiveness in reticent children. It is not clear, however, that this is the most effective strategy for increasing these children's insufficient behavior. On the contrary, evidence exists that questior asking may constrain children's conversational participation (see Hubbell, 1977). Berger and his colleagues (1975) discuss a similar concept with adult interactions. They argue that there is a limit on the number of questions that may be asked per unit of time. When limits are exceeded, the person being asked the question is likely to become reticent to answer them.

The interactions which reticent children naturally elicit from adults may tend to increase rather than decrease their already low level of verbal responsiveness. Reticent children may as such be candidates for conversational skill training, since the plethora of negative consequences associated with reticence in academic, economic, and social realms is well documented. Furthermore, adults might be trained to interact with such children in a manner which would facilitate rather than constrain the child's tendency to participate in conversation.

CONCLUSIONS

The nature of reticence. While conclusions regarding talkative and reticent children in general must remain guarded due to the small sample size in the present

study, this preliminary investigation contains numerous findings which offer insignts into the nature of reticence. Two noteworthy causal explanations emerged from patterns noted in the current data that deserve further examination.

Several findings suggest a skill delay in the social use of language on the part of the reticent children. As is characteristic of normal younger children, these children had a narrower range of pragmatic functions coded linguistically and a smaller proportion of questions in their speech. In some ways, the adult talk addressed to the reticent children resembled talk to younger children. For example, other research has found that the rate of direct requestives (imperatives) decreases as the age of the child being addressed increases (Bellinger, 1979; Glanzer & Dodd, Note 4; Newport, 1976; Rondal, 1978). Also, the number of questions addressed to the child also decreases as a function of age (Cross, 1977; Longhurst & Stepanich, 1975). In general, the number of declaratives also increases with an increase in the age of the child being addressed (Glanzer & Dodd, 1975; Newport, 1976). In the present study, these same adjustments characteristic of talk to younger children were also found in the talk addressed to the reticent children. In many ways then, the reticent children were both acting and being treated conversationally as if they were younger than their more talkative peers. While any broad generalization regarding these findings is premature, it does appear that there may at least be a subgroup of reticent children who exhibit a delay in the social use of language. Since it has been established that knowledge of language structure was not delayed for these children, these findings suggest a communication deficiency as opposed to a language deficiency. While such a distinction has been suggested in the literature (e.g., Bloom & Lahey, 1978; Nelson, 1978), there have been no empirical reports of actual children fitting such a description. The reticent children in the present study provide an initial characterization of the actual language behaviors of such a child.

An alternative,or perhaps complementary, explanation of the current findings resides in regarding the behaviors of the reticent children as an individual difference. Implicit in the skill delay model is the notion that the reticent children might eventually "catch up" with their more loquacious peers. One might view the reticent children's behavior instead as reflecting an individual difference in social style, i.e., a personality characteristic that is not outgrown. The reticent children displayed a general pattern of conversational "nonassertiveness" that would fit well with this explanation. Indeed, some of the same findings that support a skill delay model (e.g., low rate of question asking) could also be construed as evidence of nonassertiveness. Moreover, responses of the adults may simply be characteristic of adjustments to less sociable interactants, including,but not exclusively consisting of, younger children. Research focusing on the language behaviors of reticent adults might provide a fruitful approach for further exploring this personality characteristic explanation of reticence.

Regardless of which of these possible explanations holds, the negative consequences for the reticent child and thus the need for intervention in more extreme cases remains. A recent study by Furman, Rahe, and Hartup (1979) offers one possible avenue for intervention. These researchers found significant increases in the sociability of socially withdrawn preschoolers during and after 10 play sessions with chronologically younger children. Since prosocial behavior in general increases with age (see Hartup, 1970), these mixed-aged dyads provided a better match in number of social overtures. With the better match, a more symmetrical communication exchange is established, giving the socially withdrawn child a communicative experience denied in interactions with more talkative age-peers.

Normal language acquisition theory implications. This preliminary investigation

addresses two issues of importance to normal language acquisition scholars. Most notably, caution is due in using MLU as an indicator of syntactic development in studies of language development. Other researchers have recently raised concerns about the validity and reliability of this very widely used measure (e.g., Chabon, Kent-Udolf, & Egolf, Note 5; Meline & Meline, Note 6; Messick, Note 7). Undoubtedly, further research is needed to unequivocally establish the contribution of the talkativeness dimension to this recently documented variation in MLU.

Regarding child variables which influence adult's child-directed talk, the current study offers evidence that a child's conversational responsiveness effects adult's pragmatic adjustments but does not influence the structural complexity of their talk. As such, support for both the conversational and comprehension models of child-directed talk has been found, although each explains a different aspect of the adult's language input.

REFERENCES

Bell, R. Stimulus control of parent or caretaker behavior by offspring. Developmental Psychology, 1971, 4, 63-72.

Bell, R. Contributions of human infants to caregiving and social interaction. In M. Lewis & L. Rosenblum (Eds.), The effect of the infant on its caregiver (The origins of behavior series, Vol. I). New York: John Wiley, 1974.

Bellinger, D. Changes in the explicitness of mothers' directives as children age. Journal of Child Language, 1979, 6, 443-458.

Berger, C., Gardner, R., Parks, M., Schulman, L., & Miller, G. Interpersonal epistemology and interpersonal communication. In G. Miller (Ed.), Explorations in Interpersonal Communication. Beverly Hills, CA: Sage Publications, 1976.

Blank, M., Gessner, M. and Esposito, A. Language without communication: A case study. Journal of Child Language, 1979, 6, 329-352.

Bloom, L. and Lahey, M. Language development and language disorders. New York: John Wiley, 1978.

Bohannon, J. and Marquis, A. Children's control of adult speech. Child Development, 1977, 48, 1002-1008.

Brown, R. A first language: The early stages. Cambridge, Mass.: Harvard University Press, 1973.

Brown, R. Introduction. In C. Snow & C. Ferguson (Eds.), Talking to children: Language input and acquisition. Cambridge, England: Cambridge University Press, 1977.

Carrow, E. Test for Auditory Comprehension of Language. Austin, Texas: Urban Research Group, 1973.

Cross, T. Mothers' speech adjustments: The Contribution of selected child listener variables. In C. Snow & C. Ferguson (Eds). Talking to children: Language input and acquisition. Cambridge, England: Cambridge University Press, 1977.

Daly, J., McCroskey, J. & Richmond, V. Judgments of quality, listening, and understanding based on vocal activity. Southern Speech Communication Journal, 1976, 41, 189-197.

Daly, J., McCroskey, J. & Richmond, V. The relationship between vocal activity and perceptions of communicators in small groups. Western Journal of Speech Communication, 1977, 41, 175-187.

REFERENCE NOTES

1. Daly, J. The talkative-quiet dimension in person perception. Paper presented at the Eastern Communication Association Annual Convention. Philadelphia, April, 1979.

2. Wedell-Monnig, J. and Westerman, T. Mothers' language to deaf and hearing impaired infants: Examination of the feedback model. Paper presented at The Second Annual Conference on Language Development, Boston University, October, 1977.

3. Van Kleeck, A. & Cooper, C. Children's Communication strategies in a cooperative learning task with developmentally delayed and normal partners. Paper presented at the annual convention of the American Educational Research Association, Boston, April, 1980.

4. Glanzer, P. & Dodd, D. Developmental changes in the language spoken to children. Paper presented at the biennial meeting of the Society for Research in Child Development, Denver, April, 1975.

5. Chabon, S. & Kent-Vdolf, L. & Egolf, D. The vicissitudes of MLU-M. Paper presented at the Annual Convention of the American Speech-Language-Hearing Association. Detroit, November, 1980.

6. Meline, T. & Meline, N. Normal variation and prediction of MLU from chronological age. Paper presented at the Annual Convention of the American Speech-Language-Hearing Association, Detroit, November, 1980.

7. Messick, C. Is MLU-M a valid indicator of linguistic complexity? Paper presented at the Annual Convention of the American Speech-Language-Hearing Association. Detroit, November, 1980.

Daly, J., Richmond, V. & Leth, S. Social-communicative anxiety and the personnel selection process: Testing the similarity effect in selection decisions. Human Communication Research, 1979, 6, 18-32.

Dunn, L. Peabody Picture Vocabulary Test. Circle Pines, Minn.: American Guidance Service, 1959.

Ervin-Tripp, S. An overview of theories of grammatical development. In D. Slobin (ed.), The ontogenesis of grammar: A theoretical symposium. New York: Academic Press, 1971.

Ervin-Tripp, S. and Miller, W. Early discourse: Some questions about questions. In M. Lewis and L. Rosenblum (eds.), Interaction, conversation, and the development of language. New York: John Wiley, 1977.

Furman, W., Rahe, D. & Hartup, W. Rehabilitation of socially withdrawn preschool children three mixed-age and same-age socialization. Child Development, 1979, 50, 915-922.

Giles, H. Accent mobility: A model and some data. Anthropological Linguistics, 1973, 15, 87-105.

Giles, H. Social psychology and applied linguistics: Towards an integrative approach. ITL: Review of Applied Linguistics, 1977, 27-40.

Greenwood, C., Walker, H., Todd, N. & Hops, H. Selecting a cost-effective screening measure for the assessment of preschool social withdrawal Journal of Applied Behavior Analysis, 1979, 12, 639-652.

Halliday, M. Explorations in the functions of language. London: Edward Arnold, 1973.

Halliday, M. Learning how to mean: Explorations in the development of language. London: Edward Arnold, 1975.

Hartup, W. Peer interaction and social organization. In P. Mussen (Ed.), Carmichael's Manual of child psychology, (3rd ed.). Vol 2, New York: Wiley, 1970.

Hayes, D. & Meltzer, L. Interpersonal judgments based upon talkativeness: I. Fact or artifact? Sociometry, 1972, 35, 538-561.

Hubbell, R. On facilitating spontaneous talking in young children. Journal of Speech and Hearing Disorders, 1977, 42, 216-231.

Keenan, E.O. Conversational competence in children. Journal of Child Language, 1974, 1, 163-183.

Lee, L. Developmental sentence analysis. Evanston, Ill.: Northwestern University Press, 1974.

Longhurst, T. & File, J. Comparison of DSS from Headstart children collected in four conditions. Language, Speech and Hearing Services in schools, 1977, 8, 54-64.

Longhurst, T. & Stepanich, L. Mothers' speech addressed to one-, two-, and three-year-old normal children. Child Study Journal, 1975, 5, 3-11.

Lougee, M., Grueneich, R. and Hartup, W. Social interaction in same-and mixed-age dyads of preschool children. Child Development, 1977.

Lynch, M. Stylistic analysis. In P. Emmert & W. Brooks (Eds.), Methods of research in communication. New York: Houghton Mifflin, 1970.

McCroskey, J. & Daly, J. Teacher expectancies of the communication apprehensive child in the elementary school. Human Communication Research, 1976, 3, 67-72.

McCroskey, J., Daly, J., Richmond, V. & Cox, B. The effects of communication apprehension on interpersonal attraction. Human Communication Research, 1975, 2, 51-65.

Nelson, K. Early speech in its communicative context. In F. Minifies & L. Lloyd (Eds.), Communicative and Cognitive Abilities - Early Behavioral Assessment. Baltimore: University Park Press, 1978.

Newport, E. Motherese: The speech of mothers to young children. In N. Castellan, D. Pisoni and G. Potts (Eds.), Cognitive theory, Vol. 2, Hillsdale, N.J.: Lawrence Earlbaum Associates, 1976.

Newport, E., Gleitman, H. and Gleitman, L. Mother, I'd rather do it myself: Some effects and noneffects of maternal speech style. In C. Snow and C. Ferguson (Eds.), Talking to children: Language Input and acquisition. Cambridge, England: Cambridge University Press, 1977.

Rondal, J. Maternal speech to normal and Down's syndrome children matched for mean utterance length. In C.E. Meyers (ed.), Quality of Life in Severely and Profoundly Mentally Retarded People: Research Foundation for Improvement. Washington, D.C.: American Association on Mental Deficiency, 1978.

Slobin, D. On the nature of talk to children. In E. Lenneberg & E. Lenneberg (Eds.), Foundations of language development. New York: Academic Press, 1975.

Snow, C. The development of conversation between mothers and babies. Journal of Child Language, 1977, 1-22.

Snyder-McLean, L. & McLean, J. Verbal information gathering strategies: The child's use of language to acquire language. Journal of Speech and Hearing Disorders, 43, 306-325.

Van Kleeck, A. & Carpenter, R. The effects of children's language comprehension level on adult's child-directed talk. Journal of Speech and Hearing Research, 1980, 23, 546-569.

Van Kleeck, A. & Daly, J. Communication development and instructional communication. In Communication Yearbook V. International Communication Association. New Brunswick, New Jersey: Transaction Books, 1981.

Table 1. Matrix used for the discourse analysis of the adult-child interactions (adapted from Blank, Gessner, and Esposito, 1979).

Child as speaker-responder	Adult as speaker-initiator		Adult as speaker-responder	Child as speaker-initiator	
Response types:	Comments	Obliges	Response types:	Comments	Obliges
1. Adequate a) meets b) expands 2. Inadequate 3. No response 4. Other			1. Adequate a) meets b) expands 2. Inadequate 3. No response 4. Other		

Table 2. Means ($\bar{x}$), standard deviations (SD), and t-test values for the structural complexity measures of the talkative and reticent children. P values are for a two-tailed test at 26 degrees of freedom.

Complexity Measures	Talkative $\bar{x}$ (SD)	Reticent $\bar{x}$ (SD)	t-value	p level (26 df)
1. Mean length of utterance.	3.8 (.30)	2.8 (.45)	4.04	$<.01$
2. Lexical type/token ratio	1.77 (.09)	1.53 (.14)	3.15	$<.01$
3. Noun-verb-adjective adverb ratio	2.63 (.66)	3.08 (1.83)	.36	
4. Word lenth index	1.14 (.04)	1.12 (.04)	.50	
5. Proportion of complex sentences	.513*(.23)	.089*(.07)	7.26	$<.01$

*Mean reflects arcsin transformation.

Table 3. Means ($\bar{x}$), standard deviations (SD) and t-test values for the RAW FREQUENCIES of occurrence of each pragmatic function in the speech of the talkative and reticent children. P values are for a one-tailed test at 26 degrees of freedom.

	Talkative		Reticent			p level
	$\bar{x}$	(SD)	$\bar{x}$	(SD)	t-value	(26 df)
Assertives	48.5	(18.66)	30.7	(14.38)	2.83	$p < .01$**
1. Positive Evaluation*	.07	(.27)	0	(0)		
2. Negative Evaluation*	.21	(.42)	0	(0)		
3. Comments	44.86	(21.26)	30.50	(14.3)	2.09	$p < .025$
4. Complies	1.43	(1.45)	.14	(.36)	3.22	$p < .01$**
5. Noncomplies*	.50	(.76)	0	(0)		
Requestives	14.57	(12.7)	3.7	(4.45)	3.02	$p < .01$**
A. Function						
1. For verbal response	8.79	(7.37)	3.29	(3.67)	2.50	$p < .01$**
2. For physical action	7.20	(7.23)	.43	(.85)	3.47	$p < .01$**
B. Form						
1. Indirect	3.00	(5.05)	.07	(.27)	2.17	$p < .025$**
2. Direct	12.36	(11.22)	2.93	(3.56)	3.00	$p < .01$**

*Insufficient frequency for statistical comparison.
**Significant at the a priori p levels established for each category or subcategory

Table 4. Proportions of talkative and reticent children's total talk that were assertives and requestives (actual mean proportions are provided for conceptual clarity; the *t* tests were conducted using arcsin transformations of these values). Where sufficient data allowed, the proportion of total assertives and requestives that fell in to the subcategories of each was also analyzed. *P* values are for a two-tailed test at 26 degrees of freedom.

Pragmatic Function	Talkative $\bar{x}$	Talkative Ø(SD)	Reticent $\bar{x}$	Reticent Ø(SD)	*t*-value	*p* level (26 df)
Assertives	77	2.22(.34)	91	2.62(.37)	2.62	$<.025$
Comments	75	2.12(.31)	90	2.58(.35)	3.68	$<.01$
Complies	2.14	.24(.17)	.64	.07(.15)	2.83	$<.01$
Requestives	21	.92(.35)	9	.51(.40)	2.88	$<.01$
A. Function						
1. For verbal response	84.6	.64(.34)	51.6	.48(.40)	1.13	
2. For physical action	48.5	.55(.32)	15.4	.40(.13)	4.07	$<.01$
B. Form						
1. Indirect	11	.60(.40)	1	.06(.18)	3.86	$<.01$
2. Direct	89	2.5(.39)	99	3.03(.16)	4.08	$<.01$

Table 5. Quantitative analysis of discourse functions. Numbers entered in table represent proportion of total number of adult-initiated comments or obliges to which talkative and reticent children gave adequate responses or no response (actual means are provided for conceptual clarity; t tests were conducted using arcsin transformations of these values). P values are for a one-tailed test at 26 degrees of freedom.

	Talkative		Reticent			p level
	$\bar{x}$	Ø(SD)	$\bar{x}$	Ø(SD)	t value	(26 df)
Adequate response rates to COMMENTS						
a. meet and expands categories combined	30	1.3(.26)	16	.84(.34)	4.07	<.0005
b. expands only	14	.75(.24)	5	.38(.20)	4.63	<.0005
Adequate response rates to OBLIGES						
a. meets and expands categories combined	70	1.92(.29)	60	1.79(.27)	1.22	<.10
b. expands only	5	.37(.25)	3	.25(.26)	1.26	<.10
No response rate to COMMENTS	56	1.69(.31)	77	2.23(.38)	4.15	<.0005
No response rate to OBLIGES	21	.94(.26)	36	1.30(.29)	3.44	<.005

Table 6. Qualitative analysis of discourse functions. Numbers entered in table represent proportion of total number of child adequate responses or no responses that were to comments or obliges (acual means are provided for conceptual clarity; t tests were conducted using arcsin transformations of these values). All t values were nonsignificant at 26 degrees of freedom.

	Talkative		Reticent		
	$\bar{x}$	Ø(SD)	$\bar{x}$	Ø(SD)	t value
Adequate response rates to COMMENTS					
a. meets and expands categories combined	26	1.04(.19)	19	.87(.30)	1.81
b. expands only	75	2.20(.53)	71	1.67(.99)	.07
Adequate response rates to OBLIGES					
a. meets and expands categories	74	2.10(.19)	80	2.13(.61)	.18
b. expands only	25	2.20(.53)	29	1.67(.99)	.07
No response rate to COMMENTS	73	2.05(.25)	70	1.98(.18)	.88
No response rate to OBLIGES	26	2.05(.25)	30	1.98(.18)	.88

Table 7. Proportion of total child-initiated speech that were comments or obliges (actual means are provided for conceptual clarity; t tests were conducted using arcsin transformations of these values). P values are for a two-tailed test at 26 degrees of freedom.

	Talkative		Reticent			p-level
	$\bar{x}$	Ø(SD)	$\bar{x}$	Ø(SD)	t value	(26 df)
Proportion COMMENTS	65	1.96(.72)	90	2.70(.53)	3.07	< .025
Proportion OBLIGES	35	2.70(.53)	10	1.96(.72)	3.07	< .025

Table 8. Means ($\bar{x}$), standard deviations (SD), and t-test values for the four measures of structural complexity of adult language with talkative and reticent children. All *t* values were nonsignificant.

	Adult With Talkative Children		Adults With Reticent Children		*t* value
	$\bar{x}$	SD	$\bar{x}$	SD	(26 df)
Complexity Measures:					
1. MLU	5.4	.76	5.4	.64	.22
2. Lexical Type/Token	1.78	.13	1.72	.15	1.20
3. Noun-Verb-Adjective Adverb Ratio	2.48	.89	3.55	1.88	1.92
4. Word Length Index	1.17	.05	1.16	.06	.48

Table 9. Means ($\bar{x}$), standard deviations (SD), and t test values for the RAW FREQUENCIES of occurrence of each pragmatic function in the adut language addressed to the talkative and reticent children. P values are for a two-tailed test at 26 degrees of freedom.

	Adults with Talkative Children		Adults with Reticent Children		t-value	p level (26 df)
	$\bar{x}$	(SD)	$\bar{x}$	(SD)		
I. Assertives	57.28	(9.47)	42.86	(11.49)	3.628	$<.01$
1. Positive Evaluator	4.35	(4.36)	5	(3.20)	.45	
2. Negative Evaluator*	.21	(.58)	.14	(.53)		
3. Comments	37	(12.52)	47.93	(11.05)	2.45	$<.025$
4. Complies	4.14	(3.37)	.57	(.85)	3.80	$<.01$
5. Noncomplies*	.43	(.94)	0	(0)		
II. Requestives	39.14	(13.75)	57.14	(11.49)	3.757	$<.01$
A. Function						
1. For verbal response	32.93	(8.9)	45.1	(14.75)	2.646	$<.025$
2. For physical action	9.79	(5.21)	11.36	(7.45)	.636	
B. Form						
1. Indirect	4.5	(2.59)	5.64	(5.48)	.623	
2. Direct	38.21	(9.42)	51.57	(13.63)	3.02	$<.01$

*Insufficient frequency for statistical comparison